AMENDMENTS TO THE CLAIMS

Presented below is a complete set of claims with current status indicators.

1. (withdrawn) A method of troubleshooting an ablation system having at least one patient return electrode, a power control system adapted to output power signals, a computer, and an electrophysiological ("EP") monitoring system, the patient return electrode, computer and EP monitoring system adapted to connect to the power control system at a patient-return-electrode receptacle, a data port and an EP-monitoring-system receptacle respectively, the patient return electrode further adapted to contact biological tissue; said method comprising:

verifying connection between the power control system and the patient return electrode;

verifying adequate contact between the patient return electrode and the biological tissue;

verifying connection between the power control system and the computer;

verifying connection between the power control system and the EP monitoring system; and

after successful verifications, allowing the power control system to output power signals.

2. (withdrawn) The method of claim 1 wherein the patient-return-electrode receptacle comprises a switch which, in the absence of an inserted connector, is open and verifying connection between the power control system and the patient return electrode comprises confirming that the switch is closed.

3. (withdrawn) The method of claim 2 wherein confirming that the switch is closed comprises:

outputting a test signal to the input of the switch; and

monitoring the output of the switch for the signal.

4. (withdrawn) The method of claim 2 further comprising generating an error indication when the switch is open.

5. (withdrawn) The method of claim 1 wherein the patient return electrode comprises at least two electrically isolated return pads and verifying adequate contact between the patient return electrode and the biological tissue comprises:

measuring the impedance between the return pads; and

comparing the impedance to an expected value.

6. (withdrawn) The method of claim 5 further comprising generating an error indication when the measured impedance is greater than the expected value.

7. (withdrawn) The method of claim 1 wherein the patient return electrode comprises at least two electrically isolated return pads and verifying adequate contact between the patient return electrode and the biological tissue comprises:

periodically sampling the impedance between the return pads;

determining an average impedance based on the sequence of measured impedances;

calculating the standard deviation of the impedance values relative to the average value; and

generating an error indication when the standard deviation is high.

8. (withdrawn) The method of claim 1 wherein the data port comprises a switch which, in the absence of an inserted connector, is open and verifying connection between the power control system and the computer comprises confirming that the switch is closed.

9. (withdrawn) The method of claim 8 wherein confirming that the switch is closed comprises:

outputting a test signal to the input of the switch; and

monitoring the output of the switch for the signal.

10. (withdrawn) The method of claim 8 further comprising generating an error indication when the switch is open.

11. (withdrawn) The method of claim 8 wherein verifying connection between the power control system and the computer further comprises establishing communication between the power control system and the computer.

12. (withdrawn) The method of claim 11 wherein establishing communication between the power control system and the computer comprises polling the computer and waiting for an answer.

13. (withdrawn) The method of claim 12 further comprising verifying the presence of appropriate software in the computer.

14. (withdrawn) The method of claim 12 further comprising generating an error indication if an answer is not received.

15. (withdrawn) The method of claim 1 wherein the power control system has a multiple pin EP- monitoring-system receptacle and the EP monitoring system comprises an EP recorder having a plurality of inputs and a display for displaying ECG signals and verifying connection between the power control system and the EP monitoring system comprises:

outputting a signal to each of the EP- monitoring-system receptacle pins in sequence; and

monitoring the EP recorder display for receipt of each signal in sequence.

16. (withdrawn) The method of claim 15 wherein each of the signals is a pulse signal having substantially the same amplitude and verifying connection between the power control system and the EP monitoring system further comprises calibrating the EP monitoring system in accordance with the amplitude.

17. (withdrawn) The method of claim 1 further comprising initiating the verifications.

18. (withdrawn) The method of claim 17 wherein the power control system further comprises a catheter receptacle and initiating the verifications comprises inserting a catheter connector into the catheter receptacle.

19. (withdrawn) The method of claim 1 wherein the verifications are performed in sequence.

20. (currently amended) An ablation system comprising:

a power control system having a patient-return-electrode receptacle, a data port, a catheter receptacle and an electrophysiological (EP) monitoring system receptacle, the power control system adapted to output power signals;

a catheter adapted to be connect to the catheter receptacle;

a patient return electrode adapted to connect to the patient-return-electrode receptacle;

a computer adapted to connect to the data port;

an EP monitoring system adapted to connect to the EP-monitoring-system receptacle; and

a processor programmed to verify each of the following upon connection of the catheter to the catheter receptacle:

connection between the power control system and the patient return electrode;

adequate contact between the patient return electrode and the biological tissue;

connection between the power control system and the computer; and

connection between the power control system and the EP monitoring system

wherein the processor is further programmed to prevent the output of power signals in the absence of the verification of any one of the preceding.

21. (original) The ablation system of claim 20 wherein the patient-return-electrode receptacle comprises a switch which, in the absence of an inserted connector, is open and the processor verifies connection between the power control system and the patient return electrode by being further adapted to:

output a test signal to the input of the switch; and

monitor the output of the switch for the signal.

22. (original) The ablation system of claim 21 wherein the processor is further adapted to generate an error indication when the switch is open.

23. (original) The ablation system of claim 20 wherein the patient return electrode comprises at least two electrically isolated return pads and the processor verifies adequate contact between the patient return electrode and the biological tissue by being further adapted to:

measure the impedance between the return pads; and

compare the impedance to an expected value.

24. (original) The ablation system of claim 23 wherein the processor is further adapted to generate an error indication when the measured impedance is greater than the expected value.

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25. (original) The ablation system of claim 20 wherein the patient return electrode comprises at least two electrically isolated return pads and the processor verifies adequate contact between the patient return electrode and the biological tissue by being further adapted to:

periodically sample the impedance between the return pads;

determine an average impedance based on the sequence of measured impedances;

calculate the standard deviation of the impedance values relative to the average value; and

generate an error indication when the standard deviation is high.

26. (original) The ablation system of claim 20 wherein the data port comprises a switch which, in the absence of an inserted connector, is open and the processor verifies connection between the power control system and the computer by being further adapted to:

output a test signal to the input of the switch; and

monitor the output of the switch for the signal.

27. (original) The ablation system of claim 26 wherein the processor is further adapted to generate an error indication when the switch is open.

28. – 33. (canceled)

34. (new) An ablation system comprising:

a power control system having a patient-return-electrode receptacle, a data port and an electrophysiological (EP) monitoring system receptacle, the power control system adapted to output power signals;

a patient return electrode adapted to connect to the patient-return-electrode receptacle;

a computer adapted to connect to the data port;

an EP monitoring system adapted to connect to the EP-monitoring-system receptacle; and

a processor programmed to verify each of the following:

connection between the power control system and the patient return electrode;

adequate contact between the patient return electrode and the biological tissue;

presence of appropriate software in the computer; and

connection between the power control system and the EP monitoring system;

wherein the processor is further programmed to prevent the output of power signals in the absence of the verification of any one of the preceding.

35. (new) An ablation system comprising:

a power control system having a multiple pin electrophysiological (EP) monitoring system receptacle having a first pin and a last pin, the power control system adapted to output power signals;

an EP monitoring system adapted to connect to the EP-monitoring-system receptacle, the EP monitoring system including an EP recorder having a plurality of inputs and a display for displaying ECG signals; and

a processor programmed to verify connection between the power control system and the EP monitoring system by outputting a signal to each of the EP-monitoring-system receptacle pins in sequence and displaying the pulses on the EP monitoring system display as a progressive sequence starting with the first pin and ending with the last pin

wherein the processor is further programmed to prevent the output of power signals in the absence of the verification of the connection between the power control system and the EP monitoring system.

36. (new) An ablation system comprising:

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a power control system having a patient-return-electrode receptacle, a data port, and an electrophysiological (EP) monitoring system receptacle, the power control system adapted to output power signals;

a patient return electrode adapted to connect to the patient-return-electrode receptacle;

a computer adapted to connect to the data port;

an EP monitoring system adapted to connect to the EP-monitoring-system receptacle;

a processor programmed to verify each of the following:

connection between the power control system and the patient return electrode;

adequate contact between the patient return electrode and the biological tissue;

connection between the power control system and the computer; and

connection between the power control system and the EP monitoring system; and

a display in communication with the processor;

wherein, in the absence of the verification of any one of the preceding, the processor is further programmed to invoke a troubleshooting routine that displays corrective action instructions on the display.

37. (new) The system of claim 36 wherein the processor is further adapted to display a graphical representation of the ablation system on the display and to provide an indication of the system component associated with the absence of the verification.